

THE TREATMENT OF FRACTURES OF THE FEMUR IN INFANCY AND CHILDHOOD.

BY MARTIN W. WARE, M.D.,

OF NEW YORK,

Adjunct Surgeon to Mt. Sinai Hospital.

FRACTURES of the femur that we encounter in infancy are those produced *inter partum* by the accoucheur, and those in nurslings, the former the result of indirect violence during delivery, and the latter very commonly met with in rhachitic infants who sustain a slight fall or blow. Here we have to deal with indirect or direct violence as causative factors. The same holds good for children when once they are able to walk.

In the infant in arms, pain, great tenderness, and slight deformity attract attention to the fracture, which at this tender age is most commonly incomplete and of the greenstick variety. In the child able to walk, the deformity may be more marked, being decidedly angular at times and associated with false motion and crepitus. The line of fracture under these circumstances is generally transverse, consequently there is no overriding of the fragments. The angular deformity which alone accounts for slight shortening is caused by the action of the muscles, which are best made to relax by flexing the thigh and leg.

This principle of flexion of the thigh and leg is made use of in the Hodges, the Smith splint, Dunham's splint, the double inclined plane of Volkman, and the vertical suspension of Schede (Hamilton). Of these the last is widely employed in fractures of the thigh in children and yields excellent results. It, however, necessitates confinement to bed, wherefore it is a more common practice to treat infants and children with a plaster-of-Paris spica embracing the thorax and extending half-way down to the leg, or using a Nélaton splint. The weight of such an extensive plaster-of-Paris dressing, while it absolutely immobilizes the fragments, makes it difficult to carry the

infant or child about, hence it is incumbent to place the little patient on his back in bed. Furthermore, free breathing is embarrassed by reason of this constant recumbent position and envelopment of the thorax with the plaster-of-Paris or the lateral splint. With the thigh in extension the toilet of the child is nigh impossible.

The disadvantages of the various splints above enumerated are offset by the use of the device about to be described, which I have used in my service at the Good Samaritan Dispensary in forty cases up to the age of five years, and on two occasions in fractures of both femora (Fig. 2), always attended with excellent results.

The accompanying illustrations (Figs. 1 and 2) will best convey the idea of the apparatus. The device consists of a right-angled isosceles triangle constructed of one strip of book-binder's pasteboard, the width of the triangle adapted to the width of the thigh. One length is obtained by measuring the trunk from the level of the lower angle of the scapula to the inguinal fold. The length of the other side of the right angle is the length of the thigh. The hypotenuse is always a few inches longer.

The single strip of cardboard is then bent to the shape of the desired triangle and the overlapping edges secured by adhesive plaster. The triangle may be made more rigid by reinforcing it on all sides of this inner aspect with small pieces of cigar-box wood. The outer surfaces in contact with the trunk and thigh are to be padded with non-absorbent cotton. A muslin spica secures the triangle embracing the trunk and the thigh in a flexed position. Over the muslin bandage several turns of a dextrin bandage are placed, giving additional security to the splint. The leg is left to move freely.

It is surprising how comfortably the infants may be carried about, how clean they may be kept during the three to four weeks that the splint is kept in place, and how uniformly successful the perfect healing of the fracture results.

In conclusion, I wish to assign credit for this device to the late Dr. W. W. Van Arsdale, whose experiences therewith



FIG. 1.—Combined pasteboard triangle and plaster-of-Paris spica apparatus for fracture of femur in infancy.



FIG. 2.—Apparatus for treatment of fracture of both femora.

were first made public in 1897 (*Journal of the American Medical Association*, vol. xxix, p. 1239). This confirmation of his experiences it is hoped will give an impetus to this very valuable method of treating fractures of the femur in infancy and childhood, which has an economic value in permitting the nursing of an infant and doing away with four weeks of recumbence in bed whether in hospital or at home.